PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	Attorney Docket No: **Q97512**
Masaaki YOKOYAMA et al.	Confirmation No.: **3569**
Application No.: **10/594,840**	Group Art Unit: **1783**
Filed: **May 20, 2008**	Examiner: **Khan, Tahseen**

For: **PATTERNED SUBSTRATE AND METHOD FOR PRODUCING SAME**

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellants submit the following:

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I. REAL PARTY IN INTEREST

SUMITOMO CHEMICAL COMPANY, LIMITED having a business address of 27-1, Shinkawa 2-chome Chuo-ku Tokyo, JAPAN is the real party in interest by virtue of the Assignment recorded at REEL 020969 and FRAME 0939.

II. RELATED APPEALS AND INTERFERENCES

All prior or pending appeals, interferences or judicial proceedings, known to any inventors, any attorneys or agents who prepared or prosecuted the application on appeal and any other person who was substantively involved in the preparation of prosecution of the application on appeal, and that are related to, directly affect, or would be directly affected by, or have a bearing on the Board's decision in the appeal, are as follows:

None.

Appellants, Appellants' legal representatives, and the Assignee of this application are not aware of any other appeals or interferences that will directly affect, or be affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-16 are pending, of which Claims 14-16 are withdrawn from consideration.

Claims 1-13 stand rejected and are the claims involved in this appeal.

Pursuant to 37 C.F.R. § 41.37(c)(1)(viii), a copy of Claims 1-13 involved in the appeal is set forth in the attached Claims Appendix.

IV. STATUS OF AMENDMENTS

The status of all amendments filed after final rejection is as follows:

A final Office Action has not issued in the present application. The claims were rejected for the second time in the Office Action dated October 15, 2010. Appellants filed a request for reconsideration on April 15, 2011, together with a Notice of Appeal, but the claims were not amended.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The claims on appeal relate to a patterned substrate which has a conductor pattern made of a conducting polymer on a conductive substrate. A patterned substrate, which has a conductor pattern made of a conducting polymer such as polythiophene or polyaniline on a conductive substrate, is useful as an electrode or the like used for an organic device (specification at page 1, lines 9-13).

Known methods of producing such a patterned substrate included forming a conductor pattern composed of a conducting polymer layer on only a desired region on a conductive substrate through a printing method such as a flexographic printing method, a screen printing method, or an ink jet method by using a solution of conducting polymer. However, the accuracy of these methods is insufficient (specification at page 1, lines 14-21).

In JP-A-7-249317, the present inventors proposed a patterned substrate, which can be obtained by forming an organic polysilane layer on a conductive substrate, and irradiating a desired region with a radiation while dipping the organic polysilane layer into an electropolymerization solution, such that the organic polysilane on the region is allowed to be decomposed and eluted while a conducting polymer is precipitated on the region by electropolymerization in order to forming a conductive pattern (specification at page 1, line 21 to page 2, line 9). However, since this substrate is produced by employing electropolymerization, the production method is complicated and is not necessarily sufficient as an industrial process (specification at page 2, lines 15-18).

Accordingly, an object of the present application is to provide a patterned substrate having a conductor pattern composed of a conducting polymer, the patterned substrate being able

to be produced with a high degree of accuracy, conveniently, and with great productivity (specification at page 2, lines 19-23).

In this regard, independent Claim 1 of the present application recites a patterned substrate having a conductor pattern obtained by:

> forming layer (B) comprising an organic polysilane **{ e.g., FIG. 3, "PMPS Layer (B)" }** on conductive substrate (A) **{ specification at page 3, lines 2-3; e.g., FIG. 3, "ITO Glass Conductive Substrate (A)" }**;
>
> irradiating a certain region of the layer (B) with a radiation to oxidize the organic polysilane constituting the layer (B) in the certain region **{ specification at page 3, lines 4-7; e.g., FIG. 3, "Ultraviolet Irradiated Part" }**; and then
>
> applying a solution containing a conducting polymer, water, and/or a hydrophilic solvent at least on the certain region of the layer (B) to form layer (C) comprising the conducting polymer **{ specification at page 3, lines 8-11; e.g., FIG. 3, "PEDOT Layer (C)" }**, while impregnating the layer (B) in the certain region with the conducting polymer to electrically connect the layer (C) and the substrate (A) **{ specification at page 3, lines 11-14 }**.

In addition, independent Claim 7 recites a patterned substrate

> characterized by having, on conductive substrate (A), **{ e.g., FIG. 3, "ITO Glass Conductive Substrate" }** layer (B) **{ e.g., FIG. 3,**

PMPS Layer (B)" } comprising an irradiated region which contains an oxide of an organic polysilane produced by irradiating the organic polysilane with a radiation and a conducting polymer and a non-irradiated region which contains the organic polysilane { **specification at page 3, lines 2-7 and page 9, lines 24-28; FIG. 3, "Ultraviolet Irradiated Part and PMPS Layer (B)** }, and having layer (C) comprising the conducting polymer { **e.g., FIG. 3, "PEDOT Layer (C)"** } at least on the irradiated region of the layer (B) { **specification at page 3, lines 8-14** }.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The grounds of rejection to be reviewed, including the statute applied, the claims subject to each rejection and the references relied upon by the Examiner are as follows:

Whether Claims 1-10 and 12-13 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Kobayashi (JP 2004/071473) in view of Kajiura (U.S. Patent No. 5,907,382).

Claims 1 and 7 are independent. The patentability of Claims 1 and 7 is argued separately below in Sections (1) and (2), respectively, of the Arguments.

Claim 11 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kobayashi (JP 2004/071473) in view of Kajiura (U.S. Patent No. 5,907,382) as applied to Claim 1, and further in view of Veres (WO 2004/013922).

VII. ARGUMENT

1. Independent Claim 1 and Dependent Claims 2-6 and 8-13

The Patterned Substrate According to Claim 1 is Patentable over Kobayashi in view of Kajiura

Independent Claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kobayashi (JP 2004/071473; a machine English-language translation was provided by the Examiner) (hereinafter "Kobayashi") in view of Kajiura (U.S. Patent No. 5,907,382) ("Kajiura").

Appellants respectfully request the Board to reverse the rejection of Claim 1.

Claim 1 recites, in part, a patterned substrate having a conductor pattern that is obtained by forming a layer (B) comprising an organic polysilane on a conductive substrate (A).

The Examiner alleges at page 3, lines 2-3 of the Office Action dated October 15, 2011 that Kobayashi discloses at paragraphs [0028] to [0032] and [0086] a wettability variable layer comprising organic polysilanes, as starting monomers, that are irradiated to form organopolysiloxanes. However, the Examiner's characterization of Kobayashi, is incorrect. Instead, Kobayashi actually discloses that its wettability variable layer can be comprised of a polysiloxane, which can be obtained by hydrolytic polycondensation of an organic silicone compound.

Accordingly, one of ordinary skill in the art would understand that Kobayashi discloses forming a polysiloxane layer (-Si-O-Si-) and not an organic polysilane layer (-Si-Si-Si-). The polysiloxane compounds disclosed in paragraphs [0028]-[0032] of Kobayashi are precursors for forming Kobayashi's polysiloxane layer (B).

The Examiner's mischaracterization of Kobayashi may be the result of the Examiner's reliance on a machine English-language translation of Kobayashi. Thus, Appellants attached an

English translation of paragraphs [0028] to [0032] and [0086] of Kobayashi to the response filed April 15, 2011. A copy of this translation is being filed herewith and is listed in the Evidence Appendix.

Claim 1 also recites, in part, irradiating a certain region of the layer (B) with a radiation to oxidize the organic polysilane constituting the layer (B) in the certain region, and then forming a layer (C) comprising a conducting polymer on at least the certain region of the layer (B), while impregnating the layer (B) in the certain region with a conducting polymer. Thus, as recited by Claim 1, the layer (C) is electrically connected to the conductive substrate layer (A).

Kobayashi does not irradiate a certain region of the layer (B) with radiation to "oxidize" the organic polysilane in the certain region. This is because Kobayashi forms the polysiloxane layer by hydrolytic polycondensation of an organic silicone compound prior to irradiation. Thus, in contrast to Claim 1, Kobayashi discloses irradiating a polysiloxane layer.

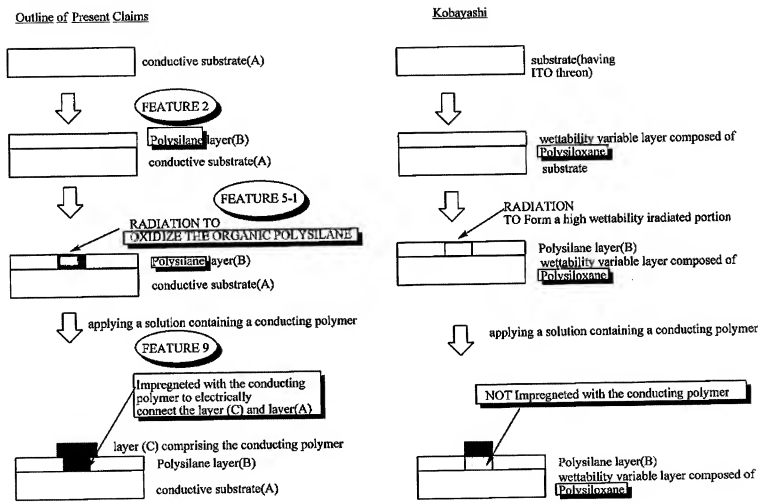
In addition, Kobayashi does not disclose impregnating the layer (B) in the certain region (i.e., the irradiated region) with a conducting polymer to electrically connect the formed layer (C) and the substrate (A).

Table 1 and Illustration 1 set forth on the following pages provide a brief comparison between the structure of the patterned substrate of the claimed invention and the patterned substrate of Kobayashi. Table 1 and Illustration 1 were first presented in the response filed July 21, 2010, and are meant for illustrative purposes only and should not be considered as enlarging or narrowing the scope of the claimed invention.

Table 1

Element	Recitation of Claim 1	Example Disclosure of Kobayashi	Does Kobayashi disclose or suggest this claim element?
Element 1	A patterned substrate having a conductor pattern obtained by:	A patterned substrate formed by:	
Element 2	forming layer (B)	Forming a wettability variable layer	
Element 3	comprising an organic polysilane	Comprising a polysiloxane that is not an organic polysilane	NO
Element 4	on conductive substrate (A);	on a substrate (having ITO);	
Element 5	irradiating a certain region of the layer (B) with a radiation	irradiating the wettability variable layer with ultraviolet ray through a mask	
Element 5-1	to oxidize the organic polysilane constituting the layer (B) in the certain region; and then	to enhance the wettability of the irradiated region	NO
Element 6	applying a solution containing a conducting polymer, water, and/or a hydrophilic solvent	applying a hydrophilic solution containing polyaniline, polythiophene or the like	
Element 7	at least on the certain region of the layer (B)	on the irradiated region	
Element 8	to form layer (C) comprising the conducting polymer,	to form a layer comprising polyaniline, polythiophene or the like.	
Element 9	while impregnating the layer (B) in the certain region with the conducting polymer to electrically connect the layer (C) and the substrate (A).		NO

ILLUSTRATION 1



It is evident from the table and illustration above that Kobayashi fails to disclose or suggest at least the above-numbered elements 3, 5-1 and 9 of Claim 1.

In summary, the structure of the patterned substrate according to Claim 1 differs from the patterned substrate of Kobayashi in the type of materials constituting layer (B). In addition, the patterned substrate of the invention recited by Claim 1 has the layer (C) electrically connected to the substrate (A). This point alone distinguishes Claim 1 from Kobayashi because Kobayashi does not have the wettability variable layer and the substrate electrically connected.

Kajiura does not cure the deficiencies of Kobayashi explained above.

According to the present claims, only a certain region of the polysilane layer (B) of the present application is irradiated, forming an oxidized (or polysiloxane) portion only in the certain region, while the surrounding region remains polysilane. The irradiation of the certain region of the polysilane layer (B) is discussed, for example, in the description at page 9, lines 24-28 of the present specification. In contrast, in the teachings of both Kajiura and Kobayashi, the entire layer (B) becomes polysiloxane before any further processing is performed. Thus, the combination of Kobayashi with Kajiura fails to disclose oxidizing organic polysilane in a certain region and then forming the layer (C) comprising a conducting polymer at least on the certain region, while impregnating the layer (B) with the conducting polymer in the certain region to electrically conduct the layers (A) and (C).

In addition, the substrate according to Claim 1 differs from the substrate of Kajiura. As explained with the help of the illustrations below, one of ordinary skill in the art in possession of the teachings of Kajiura would not have thought to electrically connect the layer (C) and the substrate (A) of Kobayashi.

The structure of the substrate recited by Claim 1, as shown, for example, in FIG. 3 of the present application, can be illustrated as follows:

[Conductive Substrate (A) (CONDUCTIVE)] /

[Non-UV-Irradiated Polysilane Region (NON-CONDUCTIVE) & Region with Conducting Polymer Impregnated after UV Irradiation (CONDUCTIVE)] /

[Layer (C) Comprising Conductive Polymer (CONDUCTIVE)]

As clearly illustrated above, different patterning is obtained in the region of (conductive)/(non-conductive)/(conductive) (i.e., no electrical connection established) and in the region of (conductive)/(conductive)/(conductive) (i.e., electrically connected).

In contrast, the structure of the substrate of Kajiura as shown, for example, in FIG. 1 of Kajiura, can be illustrated follows:

[Metal Oxide Layer or Metal Nitride Layer **124** (NON-CONDUCTIVE)] /

[Heat Resistant Transparent Resin Substrate **11** (NON-CONDUCTIVE)] /

[Metal Oxide Layer or Metal Nitride Layer **123** (NON-CONDUCTIVE)] /

[Transparent Electrode **15** (CONDUCTIVE)]

As taught by Kajiura, the metal oxide layer or metal nitride layer **123** (non-conductive) is obtained by the irradiation of polysilane with UV. Thus, as clearly illustrated above, the structure of the layers in Kajiura is (non-conductive)/(non-conductive)/(non-conductive)/(conductive) (i.e., no electrical connection is established).

In view of the above, one of ordinary skill in the art would readily appreciate that the layer structure is different between Claim 1 and Kajiura.

The structure according to Claim 1 has polysilane layer (B) formed on a conductive layer, and Kajiura has a polysilane layer formed on a non-conductive layer. This difference in layer structure for the invention recited by Claim 1 allows the impregnation of the layer (B) in the radiation-irradiated region with a conducting polymer to permit electrical connection between the layer (C) and the substrate (A). In contrast, Kajiura cannot realize this type of electrical connection because one layer is conductive while the other is non-conductive. Thus, neither Kobayashi nor Kajiura teaches or suggests the electrical connection recited by Claim 1.

In addition, Appellants respectfully disagree with the Examiner's assertion on page 4, lines 3-4 of the Office Action dated October 15, 2011, that Kajiura further discloses impregnating its polysilane thin film layer with "conductive" silane coupling agents. Kajiura in column 15, lines 44-56 mentions coupling agents, but the coupling agents are not electrically conductive. Although Kajiura discloses that the fine pores of the silicon oxide layers are impregnated with the coupling agent, and thus the mechanical strength of the silicon oxide layers and the adhesion of the base and the silicon oxide layers can be improved, Kajiura does not provide any description that the coupling agents are electrically conductive. In this regard, column 15, lines 54-56 of Kajiura discloses that "The coupling agent and process method thereof are the same as those for the transparent conductive substrate according to the present invention." The Examiner appears to have mischaracterized the coupling agent of Kajiura as being conductive. Instead, from the context of this sentence in view of the entirety of the disclosure of Kajiura, one of ordinary skill in the art would understand that Kajiura is indicating that the coupling agent and process method thereof (for the silicon oxide layers) are the same as those (coupling agent and process method) for the transparent conductive substrate according to the present invention.

Accordingly, Kajiura does not teach or suggest electrically connecting the layer (C) and the substrate (A), as recited by Claim 1, and likewise, the combination of Kobayashi and Kajiura would not have led to the structure of Claim 1. Further, the patterned substrate of Claim 1 has formed thereon a pattern of conductive portion (A) and portion (C) derived from originally non-conductive portion (B). In this regard, the presently claimed invention recited by Claim 1 is different in patterning from Kobayashi. Further, there is no disclosure or suggestion in Kobayashi or Kajiura to arrive at the structure of the patterned substrate recited by Claim 1.

In view of the above, Appellants respectfully request that the Board reverse the rejection of Claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Kobayashi and Kajiura.

Claims 2-6 and 8-13 depend from Claim 1 and are thus patentable over the Examiner's combination of Kobayashi in view of Kajiura by virtue of their dependency for the reasons explained above and the additional elements recited therein.

Moreover, Claim 11 depends from Claim 1, and Appellants submit that Veres does not cure the deficiencies of Kobayashi and Kajiura, so Claim 11 is patentable for at least that reason.

2. Independent Claim 7

The Patterned Substrate According to Claim 7 is Patentable over Kobayashi in view of Kajiura

Independent Claim 7 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kobayashi in view of Kajiura.

Appellants respectfully request the Board to reverse the rejection of Claim 7.

Claim 7 recites, in part, a patterned substrate having, on a conductive substrate (A), a layer (B) comprising an irradiated region which contains an oxide of an organic polysilane and a conductive polymer and a non-irradiated region which contains organic polysilane. In addition,

Claim 7 provides a layer (C) comprising the conductive polymer at least on the irradiated region of the layer (B).

The Examiner alleges at page 3, lines 2-3 of the Office Action dated October 15, 2011, that Kobayashi discloses at paragraphs [0028] to [0032] and [0086] a wettability variable layer comprising organic polysilanes, as starting monomers, that are irradiated to form organopolysiloxanes. However, the Examiner's characterization of Kobayashi, is incorrect. Kobayashi actually discloses that its wettability variable layer can be comprised of a polysiloxane, which can be obtained by hydrolytic polycondensation of an organic silicone compound. Accordingly, one of ordinary skill in the art would understand that Kobayashi discloses forming a polysiloxane layer (-Si-O-Si-) and not an organic polysilane layer (-Si-Si-Si-). The polysiloxane compounds disclosed in paragraphs [0028]-[0032] of Kobayashi are precursors for forming Kobayashi's polysiloxane layer (B).

As noted above, the Examiner's mischaracterization of Kobayashi may be the result of the reliance on a machine English-language translation of Kobayashi. Thus, Appellants attached an English translation of paragraphs [0028] to [0032] and [0086] of Kobayashi to the response filed April 15, 2011, and a copy of this translation is being filed herewith.

Accordingly, one of ordinary skill in the art would readily appreciate that Kobayashi does not irradiate a certain region of the layer (B) with radiation to "oxidize" the organic polysilane in the certain region. This is because Kobayashi forms the polysiloxane layer by hydrolytic polycondensation of an organic silicone compound prior to irradiation. Thus, in contrast to Claim 7, Kobayashi discloses an irradiated polysiloxane layer.

In addition, Kobayashi does not disclose a layer (B) that is impregnated in the certain region (i.e., the irradiated region) with a conducting polymer to electrically connect the formed layer (C) and the substrate (A).

In summary, the structure of the patterned substrate according to Claim 7 differs from the patterned substrate of Kobayashi in the type of materials constituting layer (B). In addition, the patterned substrate of Claim 7 would have the layer (C) electrically connected to the substrate (A) because the layer (C) and the irradiated region of (B) comprise conducting polymer. This point alone distinguishes Claim 1 from Kobayashi because Kobayashi does not have the wettability variable layer and the substrate electrically connected.

Kajiura does not cure the deficiencies of Kobayashi explained above.

Claim 7 explicitly recites a structure comprising an irradiated region and a non-irradiated region. The irradiation of the polysilane layer (B) is discussed, for example, in the description at page 9, lines 24-28 of the present specification. Appellants submit that one of ordinary skill in the art would not have arrived at the structure of Claim 7 in view of teachings of Kobayashi in view of Kajiura

According to the teachings of both Kajiura and Kobayashi, the entire layer (B) becomes polysiloxane before any further processing is performed. Thus, the combination of Kobayashi with Kajiura does not disclose or fairly suggest a structure that includes both an irradiated region and a non-irradiated region, as is recited by Claim 7. Therefore, the Examiner's combination of Kajiura and Kobayashi does not meet each element of Claim 7.

In addition, the substrate according to Claim 7 differs from the substrate of Kajiura. As explained with the help of the illustrations below, one of ordinary skill in the art in possession of

the teachings of Kajiura would not have arrived at electrically connecting the layer (C) and the substrate (A).

The structure of the substrate recited by Claim 7, as shown, for example, in FIG. 3 of the present application, can be illustrated as follows:

[Conductive Substrate (A) (CONDUCTIVE)] /

[Non-UV-Irradiated Polysilane Region (NON-CONDUCTIVE) & Region with Conducting Polymer Impregnated after UV Irradiation (CONDUCTIVE)] /

[Layer (C) Comprising Conductive Polymer (CONDUCTIVE)]

As clearly illustrated above, different patterning is obtained in the region of (conductive)/(non-conductive)/(conductive) (i.e., no electrical connection established) and in the region of (conductive)/(conductive)/(conductive) (i.e., electrically connected).

In contrast, the structure of the substrate of Kajiura as shown, for example, in FIG. 1 of Kajiura, can be illustrated follows:

[Metal Oxide Layer or Metal Nitride Layer **124** (NON-CONDUCTIVE)] /

[Heat Resistant Transparent Resin Substrate **11** (NON-CONDUCTIVE)] /

[Metal Oxide Layer or Metal Nitride Layer **123** (NON-CONDUCTIVE)] /

[Transparent Electrode **15** (CONDUCTIVE)]

As taught by Kajiura, the metal oxide layer or metal nitride layer **123** (non-conductive) is obtained by the irradiation of polysilane with UV. Thus, as clearly illustrated above, the structure of the layers in Kajiura is (non-conductive)/(non-conductive)/(non-conductive)/(conductive) (i.e., no electrical connection is established).

In view of the above, one of ordinary skill in the art would readily appreciate that the layer structure is different between Claim 7 and Kajiura.

The structure according to Claim 7 has a polysilane layer (B) formed on a conductive layer, and Kajiura has a polysilane layer formed on a non-conductive layer. This difference in layer structure for the invention recited in Claim 7 allows the impregnation of the layer (B) in the radiation-irradiated region with a conducting polymer to permit electrical connection between the layer (C) and the substrate (A). In contrast, Kajiura cannot realize this type of electrical connection because one layer is conductive while the other is non-conductive.

In addition, Appellants respectfully disagree with the Examiner's assertion on page 4, lines 3-4 of the Office Action dated October 15, 2011, that Kajiura further discloses impregnating its polysilane thin film layer with "conductive" silane coupling agents. Kajiura in column 15, lines 44-56 mentions coupling agents, but the coupling agents are not electrically conductive. Although Kajiura discloses that the fine pores of the silicon oxide layers are impregnated with the coupling agent, and thus the mechanical strength of the silicon oxide layers and the adhesion of the base and the silicon oxide layers can be improved, Kajiura does not provide any description that the coupling agents are electrically conductive. In this regard, column 15, lines 54-56 of Kajiura discloses that "The coupling agent and process method thereof are the same as those for the transparent conductive substrate according to the present invention." The Examiner appears to have mischaracterized the coupling agent of Kajiura as being conductive. Instead, from the context of this sentence in view of the entirety of the disclosure of Kajiura, one of ordinary skill in the art would understand that Kajiura is indicating that the coupling agent and process method thereof (for the silicon oxide layers) are the same as

those (coupling agent and process method) for the transparent conductive substrate according to the present invention.

In sum, the patterned substrate of Claim 7 has formed thereon a pattern of conductive portion (A) and portion (C) derived from originally non-conductive portion (B). In this regard, the presently claimed invention recited by Claim 7 is different in patterning from Kobayashi. There is no disclosure or suggestion in Kobayashi or Kajiura to arrive at the structure of the patterned substrate recited by Claim 7, which not only comprises the irradiated and non-irradiated regions, but also the presence of a conducting polymer in the irradiated region to establish electrical connection between the layers (A) and (B).

In view of the above, Appellants respectfully request that the Board reverse the rejection of Claim 7 under 35 U.S.C. § 103(a) as being unpatentable over Kobayashi and Kajiura. No pending claims depend from Claim 7.

VIII. CONCLUSION

The statutory fee (37 C.F.R. §41.37(a) and 1.17(c)) is being remitted. The U.S. Patent and Trademark Office is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

/ Michael G. Raucci /

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Date: July 15, 2011

CLAIMS APPENDIX

CLAIMS 1-13 ON APPEAL:

1. A patterned substrate having a conductor pattern obtained by:

forming layer (B) comprising an organic polysilane on conductive substrate (A);

irradiating a certain region of the layer (B) with a radiation to oxidize the organic polysilane constituting the layer (B) in the certain region; and then

applying a solution containing a conducting polymer, water, and/or a hydrophilic solvent at least on the certain region of the layer (B) to form layer (C) comprising the conducting polymer, while impregnating the layer (B) in the certain region with the conducting polymer to electrically connect the layer (C) and the substrate (A).

2. The patterned substrate according to Claim 1, wherein the irradiation is performed through a shadow mask pattern.

3. The patterned substrate according to Claim 1, wherein the irradiation is performed in an atmosphere having a humidity of 30% or more.

4. The patterned substrate according to Claim 1, characterized in that a surface of the layer (B) excluding the irradiated region is oxidized after the organic polysilane constituting the layer (B) in the irradiated region is oxidized.

5. The patterned substrate according to Claim 4, wherein the surface of the irradiated region of the layer (B) and the solution containing the conducting polymer, water, and/or a

hydrophilic solvent are allowed to contact with each other and then are kept as they are for 15 seconds or more, before applying the solution containing the conducting polymer, water, and/or the hydrophilic solvent on said surface.

6. The patterned substrate according to Claim 1, wherein after impregnating the layer (B) in the irradiated region with the conducting polymer, the layer (B) is irradiated with a radiation to oxidize the organic polysilane constituting the layer (B) excluding the irradiated region.

7. A patterned substrate characterized by having, on conductive substrate (A), layer (B) comprising an irradiated region which contains an oxide of an organic polysilane produced by irradiating the organic polysilane with a radiation and a conducting polymer and a non-irradiated region which contains the organic polysilane, and having layer (C) comprising the conducting polymer at least on the irradiated region of the layer (B).

8. The patterned substrate according to Claim 1, wherein the conducting polymer includes polythiophene or a derivative thereof, and/or polyaniline or a derivative thereof.

9. An organic electroluminescence device, characterized by using the patterned substrate according to Claim 1.

10. An organic transistor, characterized by using the patterned substrate according to Claim 1.

11. An organic photo-sensor, characterized by using the patterned substrate according to Claim 1.

12. An organic solar cell, characterized by using the patterned substrate according to Claim 1.

13. An optical-optical conversion device, characterized by using the patterned substrate according to Claim 1.

EVIDENCE APPENDIX

Pursuant to 37 C.F.R. § 41.37(c)(1)(ix), submitted herewith are copies of any evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 or any other evidence entered by the Examiner and relied upon by Appellant in the appeal:

- English translation of paragraphs [0028] to [0032] and [0086] of Kobayashi (JP 2004/071473), which was submitted with the response filed April 15, 2011.

RELATED PROCEEDINGS APPENDIX

Appellants, Appellants' legal representatives, and the Assignee of this application are not aware of any other related proceedings that will directly affect, or be affected by, or have a bearing on the Board's decision in the pending appeal.